

## WHITEPAPER

# A Strategy For Math Practice That Works

### Executive Summary:

This whitepaper outlines the benefits of ClassHero, a new learning software platform that integrates K-5 full-curriculum math with three significant innovations:

1. A web-based software makes it possible for teachers to easily differentiate math instruction that is aligned to their daily classroom curriculum, resulting in “significant academic gains” in an independent study;
2. A built-in engagement and positive reinforcement feature that rewards student success for meeting learning goals, resulting in an overall increase in math practice-times by 20%, with the greatest gains - an increase of over 50% - shown among “reluctant learners”.
3. Allows districts to take advantage their current “interim assessment” scores, by transforming each child’s scores into differentiated learning plans and interventions for teachers.

### ClassHero: Proven Performance and Engagement Gains

- An independent pilot study conducted in 2017 by the Southwest Washington STEM Network at 21 Elementary Schools in SW Washington found that “at a 90% confidence level, students who participated in the pilot had greater academic gains in math than students who did not.”
- Classrooms using ClassHero saw a 20% average increase in productive practice times after ClassHero’s badge system of rewards was introduced. This gain was highest – over 50% - among reluctant learners. Teachers reported “increased confidence” and “reduced aversion to math” as a subject-matter – both key to overcoming hurdles in learning.
- Students not using ClassHero used one of several popular “adaptive supplementary math” software or using traditional methods such as paper assignments and worksheets. (see Table for comparison)

### ClassHero: Teacher-Directed, Differentiated Assignments

The ClassHero learning platform consists of a Student App that runs on Tablets, web-browsers or Chrome-books) that students use for practice and assignments; and a web-based portal or Dashboard for teachers to set and review assignments. The ClassHero approach is made practical by the rapid introduction of devices inside teacher classrooms, allowing teachers to see technology as a “partner” rather than as “supplement”.

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### ClassHero: Teacher-Directed, Differentiated Assignments *(continued)*

ClassHero combines the following key features and strategies:

- ✓ **Full Common Core Curriculum.** Built-in comprehensive K-5 Curriculum that is aligned to common core as well as state standards;
- ✓ **Playful Practice.** A student app designed to stimulate learning through fun, visual games. They'll look forward to math practice!
- ✓ **Easy Differentiation.** A simple, visual dashboard teachers can use to easily differentiate assignments using recommendations from ClassHero.
- ✓ **Printed Badges.** An fun rewards system with collectible badges featuring whimsically illustrated scientists and mathematicians.
- ✓ **Time-bound Assignments.** Ten-minute productive sessions reinforce learning as effectively but without the boredom, that are consistent with practice times considered productive in larger studies.

	Undirected but Adaptive, Supplementary Learning	ClassHero: Teacher-Directed, Differentiated Learning
<b>Role of Teacher vs Software</b>	<p><b>“Teacher-agnostic practice”:</b> Software offers assignments and questions that are adaptive but largely operate without requiring the teacher’s ongoing involvement. Software designed to discount the role of teacher in practice and assignments. Traditionally treated as “bonus practice”.</p>	<p><b>“Teacher-directed practice”:</b> Software offers assignments and questions that are adaptive but rely on the Teacher’s continual oversight in choice of ongoing assignments. Software provides continual, insightful guidance to teachers directing assignments.</p>
<b>Alignment to Everyday Curriculum and Curricular Standards</b>	<p><b>“Correlated, but incongruent curriculum”:</b> Generalized alignment with curricular standards, but no alignment to daily classroom core curriculum or instruction.</p>	<p><b>“Congruent curriculum”</b> Generalized alignment with curricular standards and specific alignment with daily classroom core curriculum and instruction.</p>
<b>Differentiation</b>	<p><b>“Adaptive, but not teacher-differentiated”:</b> Teachers have no role in or means of personalizing assignments to known individual weaknesses or strengths, relying entirely on the software’s adaptive capabilities.</p>	<p><b>“Adaptive and teacher-differentiated”:</b> Teachers partner with software to Differentiate assignments for each child, relying on software’s adaptiveness &amp; recommendations to identify weaknesses /strengths.</p>
<b>Role in Classroom Instruction</b>	<p><b>“Undirected, supplementary instruction”:</b> Cannot reinforce everyday classroom instruction.</p>	<p><b>“Teacher-directed focused instruction”:</b> Reinforces everyday classroom instruction.</p>
<b>Connecting with Interim Assessments Scores</b>	<p><b>“Disconnected from interim assessments”:</b> Disconnected from each child’s interim assessments and cannot learn from assessment scores to differentiate subsequent instruction.</p>	<p><b>“Practical use of assessment scores”:</b> Enables teachers to transform each child’s interim assessment scores into differentiated learning.</p>